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IN TWO SECTIONS.

Section I

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IN THIS ISSUE

The Vermont Maple Furniture Company (A Cost Study), by Clinton W. Bennett..... 1225

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EDITORIAL DEPARTMENT NOTE

There are those who feel that there is too little uniformity in industrial accounting, that all companies are engaged in the same processes of purchasing, manufacturing and selling and that, were cost accounting principles more nearly uniform their application to specific industries or companies would be a relatively simple matter. Others feel that the members of the first group have in many cases confused principles with application, and that the apparent lack of uniformity arises not so much from the acceptance of different principles by different accountants but in the application of these principles to meet the specific needs of each industry or company. We are inclined to agree with this latter group and to find in this viewpoint justification for the large number of studies of cost accounting as applied to specific industries which have appeared in the N.A.C.A. Bulletin. We are constantly endeavoring to add to these industry case studies and to present articles dealing with industries not previously treated in N.A.C.A. publications. The article in this issue of the Bulletin is, we feel, a good example of sound cost accounting principles applied to a specific industry.

The author of this article is Clinton W. Bennett, a Vice President of our Boston Chapter. Mr. Bennett entered professional work in 1916 and his activities from that time until 1925 covered many phases of industry, commerce and finance. For several years he was General Manager of the Robert Mason Co. of Pawtucket, R. I. He was for several years Supervising Cost Engineer with Cooley & Marvin of Boston, and is now a Partner in that firm.

Besides being a member of N.A.C.A., Mr. Bennett is Associate Member of the American Society of Mechanical Engineers and Associate of the American Institute of Accountants, a Fellow of the Massachusetts Society of Certified Public Accountants and a Certified Public Accountant of Massachusetts and New Hampshire. He has spoken at our National Convention and before several of our chapters on numerous occasions. He has been a frequent contributor to technical articles for several issues of our Bulletins, as well as to several magazines.

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NATIONAL ASSOCIATION OF
COST ACCOUNTANTS

JULY 1, 1938

THE VERMONT MAPLE FURNITURE COMPANY

A Cost Case Study

By Clinton W. Bennett, Partner,
Cooley & Marvin, Boston, Mass.

Foreword

THE furniture industry is composed of a large number of medium-sized and small factories, many of which are located in the smaller cities and towns. The average manufacturer does not possess a sufficiently large sales force or sufficient sales coverage under his direct control to make possible the proper organization of his merchandising activities according to the most effective and profitable channels of distribution coupled with adequate advertising and other direct promotional work, all of which are necessary if the buying public is to be made conscious of the advantages possessed by the products offered. Consequently, the sales and merchandising methods found in the furniture industry are largely of the traditional hit-and-miss variety. Then too, many manufacturers operate in old and inefficient plants with high cost methods and machinery. Moreover, to add to these woes, the public remains deplorably fickle in its furniture ideas. A relatively few years ago the craze for maple furniture swept across the land, and a number of plants that were feeling the sheriff's breath on the backs of their necks suddenly enjoyed an unexpected bonanza by going into production on maple goods. But here again, the imperative need of keeping abreast of the ever-changing whims of the householders of the land became apparent, for during one season a certain type of finish would sell readily, while in the following season, there would be no demand for that finish.

All of these sales problems result in drastic periods of peak and valley production coupled with wide swings in operating costs. Furthermore, the problems of obsolete stock and materials, and the control of lumber waste become of paramount importance. Only through adequate cost accounting can these operating problems and profit consuming wastes be controlled, yet the average manufacturer in this industry cannot afford to spend much money for clerical help or other cost or accounting adjuncts.

It has been my privilege to serve a number of furniture manufacturers both large and small and, as a result, I have been able to note at first hand the tremendous value of practical simplified cost and accounting methods as vital aids to the management of these enterprises. So it is in the hope that some small contribution may be made to the general welfare of this industry, particularly to the small manufacturer, that this article has been written. The plant used as a basis for this study was picked with a definite purpose. It is not an ideal plant—there are few ideal plants—but it is believed to be representative of the majority of plants in the industry, and those are the cases that must be studied if we are to do the greatest amount of good to the greatest number.

Company Background and Present Procedure

Background

The Vermont Maple Furniture Company (the name is fictitious) was founded about the turn of the century as a chair factory, and it functioned in this capacity with varying success and failure until the crack-up of the late unlamented "dance of the millions." In 1930, the executives directed their energy and designing ability to the development of a line of general furniture which enjoyed, and apparently still enjoys, a considerable amount of consumer acceptance. During these years of increasingly intensive competition, the company was hampered by a lack of adequate cost knowledge. During the war, a cost system was installed which was regarded as being up-to-date and representative of modern cost practice for the industry; yet points of vital import to the business were arising constantly upon which the cost system could shed no appreciable light. Finally, the executives determined to check up on the methods in use and an investigator was called in.

Present Procedure

After looking through the plant and becoming familiar with the general types of products manufactured, as well as the manufacturing and sales policies pursued, the investigator proceeded to examine the accounting and cost control structure. This step started with the general ledger, which he found contained the ac-

EXHIBIT A

THE VERMONT MAPLE FURNITURE CO.

LIST OF GENERAL LEDGER ACCOUNTS

Capital Stock
Surplus
Accounts Payable
Cash
Notes Receivable
Interest Received
Lumber
Upholstery
Shipping
Mill Supplies
Finishing
Finished and Semi-Finished Stock
Sample Stock
Coal
Miscellaneous Equipment
Real Estate
Machinery
Office Furniture and Fixtures
Life Insurance
Insurance
Taxes
Cash Sales
Cost System Expense
Parcel Post
Labor Account
Sales Allowances
Sales Returns
Petty Cash
Selling Expense
Bank Exchange
Rents Received
Commissions
Repairs to Machinery
Power
Merchandise Sales
Repairs to Buildings
Plating Supplies
Reserve for Discounts
Reserve for Bad Debts
Reserve for Depreciation on Buildings
Reserve for Depreciation on Machinery
Reserve for Depreciation on Furniture and Fixtures
Reserve for Federal Taxes
Accounts Receivable
Administrative Expense
Freight Allowances
Trucking Expense
General Operating Expense
Salaries
Discount on Purchases
Freight In

counts listed in Exhibit A. It was obvious immediately that they fulfilled the minimum of bookkeeping requirements, offered no appreciable assistance in the all-important field of cost control, and furnished no data for management guidance. Something would have to be done, therefore, to correct these defects.

The investigator next looked at the cost sheet and its supporting procedures. He found a cost sheet (illustrated on Exhibit B), 15¾″ x 11″ in size, having identical provisions on both sides. As a batch of work was placed in process, it was given an order number and one of the cost sheets prepared. All material delivered for use on this order was reported accordingly, lumber on the truck tag, Exhibit C, and other materials on plain sheets of paper. The quantities consumed were priced and posted to the cost sheet, while direct labor performed on the operations listed on the truck tag was reported on the truck tag and any other labor was reported on the weekly labor report shown on Exhibit D. Labor was priced and posted to the cost sheet from these two sources. Under the

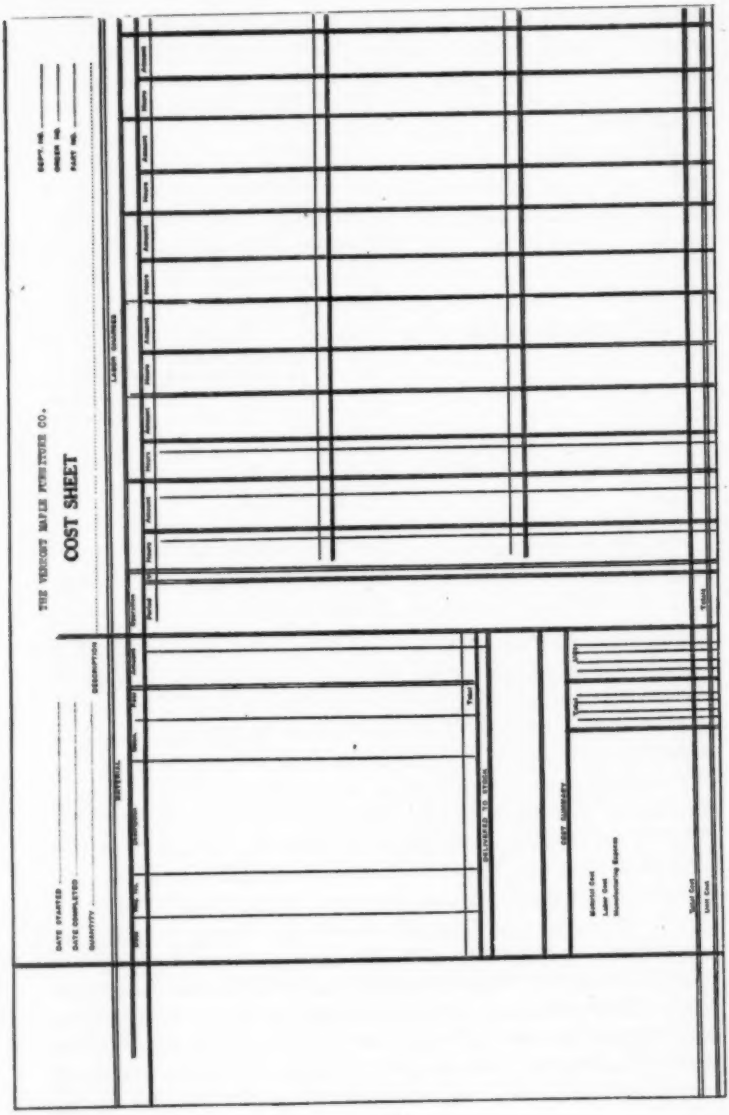

THE VERCOUT MAPLE FURNITURE CO.
COST SHEET
DEPT. NO.
ORDER NO.
PART NO.
DATE STARTED
DATE COMPLETED
QUANTITY
DESCRIPTION
LABOR CHARGES
MATERIAL
CHARGES TO WORK
COST SUMMARY
Material Cost
Labor Cost
Manufacturing Expense
Total Cost
Unit Cost

EXHIBIT B

old methods, manufacturing expense was intended to include burden of every description, both manufacturing and selling, and was applied as a single percentage of direct labor regardless of the product or the operations performed upon it.

EXHIBIT C

Truck Tag

Shop Order No. _____

Date _____

Part Name _____

Lumber _____

No. Pcs. Cut _____

No. Pcs. After Bending _____

OPERATIONS

	Time	Cost	Pcs.	Emp. No.
Cutting stock				
Ripping				
Planing				
Bending				
Shaper				
Band saw				
Scraper				
Jig sander				
Flat sander				

Total No. Pcs. Job Complete _____

These illustrations are sufficient to indicate the existence of more weaknesses in the system than there is room to detail in this article. Although the plant produced cataloged articles, costs were determined upon a job shop basis. This had to be corrected. No possible control was afforded over the amount of lumber or other material used in producing a table, for example, as contrasted with the amount of material which that table should consume, and the all-important problem of lumber waste was left entirely to the tender care of the mill room foreman. Obviously, no control worthy of the name could be obtained over labor by using the two reports mentioned above, namely, the truck tag and the weekly report. The only check on the manufacturing expense rate was obtained at the end of each year when the general manager worked out the best data available to him by studying the trial balance for the year. Certainly, improvement in burden procedure was in order.

Determination of Fundamental Plan

Nothing further was needed to convince the investigator of the great need of improved cost and accounting methods. The problem was—what methods? As stated previously, the plant was a small one, yet it was of the type which comprises the great majority of the furniture manufacturing plants in America today. It

EXHIBIT D

THE VERMONT MAPLE FURNITURE CO.

Work done by ..... Number ..... for the week ending Friday ..... 192....

Rate .....

Operation	Order No.	S.	M.	T.	W.	T.	F.	S.	Total	Amount

would have been easy to decide what to do in a large and well-staffed plant; but real ingenuity was required to develop and place in successful operation a modern cost plan in a typical furniture plant which sold approximately a half million dollars worth of goods yearly. This was the task facing the investigator.

It soon became evident that a simplified standard cost plan would best fit the situation. Under this plan, standard costs would be set up for each product and all cost collecting by jobs discontinued. Lumber and other materials would be included in these

CHART OF ACCOUNTS

	ASSETS					LIABILITIES					REVENUE AND EXPENSE				
	A CURRENT	B INVENTORY	C FIXED	D DEFERRED		E CURRENT	F FIXED	G RESERVES	H CAPITAL		SALES, DEDUCTIONS, COST	E BURDEN FACTORY	L BURDEN COMMERCIAL	M OTHER INCOME & CHARGES	
1	Cash in Office	Lumber	Land		1	Payroll Accrued		Reserve for Depreciation	Capital Stock Common	1	Sales	Supervision	Executive Salaries	Interest Received	1
2	Cash in Banks	Finishing Material	Buildings	Interest Prepaid	2	Notes Payable Banks		Buildings		2		Repairs to Buildings	Postage	Discounts Received	2
3		Upholstering Material	Machinery		3			Machinery	Surplus	3	Sales Returns	Repairs to Machinery & Equipment	Printing & Stationery	Sundry Sales & Income	3
4	Accounts Receivable Trade	Hardware	Miscl. Equipment		4	Accounts Payable Trade		Miscl. Equipment		4	Sales Allowances	Yard & Kilns	Telephone & Telegraph		4
5	Accounts Receivable Other	Plating Material	Office Furn. & Fixt.	Insurance Unexpired	5	Accounts Payable Other		Office Furn. & Fixt.	Profit & Loss	5	Freight Out	Heat, Light & Power	Donations		5
6					6					6	Discounts Allowed	Trucking & Shipping	General Office Exp.		6
7		Mill Supplies			7					7		General Factory Exp.	Office Payroll		7
8		Power Plant Supplies	Autos & Trucks		8	Provision for Bad Debts		Autos & Trucks		8		Insurance a-Liability b-Fire&Other	a-Bank Charges b-Directors' Fees		8
9					9					9		Taxes a-General b-Social Security	Commissions		9
10		Work in Process Material			10	Discounts Accrued				10		Depreciation	Trucking		10
11		Work in Process Labor			11	Taxes Accrued				11	Factory Cost of Sales	Freight In	Rent & Exp. of Sales Rooms	Interest Paid	11
12	Life Insurance Cash Value	Work in Process Burden		Advances to Salesmen	12				Material Cost Variances	12	Commercial Cost of Sales	Indirect Labor	Catalogs	Life Ins. Expense	12
13					13				Labor Cost Variances	13		Mill Supplies Used	a-Bad Debts b-Advertising		13
14					14				Factory Burden Cost Variances	14			Photo Supplies	Federal Income Taxes	14
15					15				Commercial Burden Cost Variances	15		Factory Burden Clearing Account	Commercial Burden Clearing Account		15

THE VERMONT MAPLE FURNITURE CO.

EXHIBIT E

standard product costs on the basis of standard specifications, instead of following the former plan of attempting to collect material used on specific orders. Factory burden would be broken down by departments or centers of burden application and applied as percentages of direct labor, while commercial burden would be applied as a percentage of total factory cost, as contrasted with the former practice of using a single rate on direct labor to include all burden. Direct labor would be collected by parts by operations without regard to the specific product in which the part was used. Moreover, all costs would be tied into and controlled by the financial books of account, and, by the simple expedient of a series of continuous controlling accounts and the necessary cost variance accounts, control and proof of all cost elements would be obtained each month. As a valuable complement, monthly statements of operations and of condition would be obtained readily from the general ledger.

The Chart of Accounts

Having determined upon the general plan, the next step was that of preparing the chart of general ledger accounts. The accounts formerly used are shown on Exhibit A, while the accounts provided under the new plan are set forth on Exhibit E. Under the existing procedure, there was no logic to the arrangement of the ledger accounts; it just developed. The revised plan, on the other hand, separated the accounts in the ledger into the three basic divisions which were further subdivided into twelve classes, as follows:

1. Assets:
   - A. Current
   - B. Inventory
   - C. Fixed
   - D. Deferred
2. Liabilities:
   - E. Current
   - F. Fixed
   - G. Reserves
   - H. Capital

3. Revenue and Expense:
   - J. Sales, deductions, costs
   - K. Factory burden
   - L. Commercial burden
   - M. Other income and charges

The accounts were placed in the ledger in accordance with the sequence shown by the chart; and the chart thus became an index to the ledger.

It may not be inappropriate to repeat that the first step in developing a cost plan is that of preparing the chart of accounts, for only in this manner can the proper co-ordination be obtained between the factory and cost activities and the books of account. Furthermore, it is only in this way that backtracking can be avoided and the work kept in a straight line.

Study of the chart of accounts will shown that the new plan did not require a complicated accounts setup simply because the costs were tied into the general ledger. Only three types of accounts were needed for purposes of cost control which would not be required if commercial accounting only were operated. These three classes were:

1. Continuous inventory controlling accounts
2. Cost variance accounts
3. Burden clearing accounts

As a consequence, the work involved in operating the general ledger was practically the same as if a modern set of commercial books only were in use.

Material Control

The following material accounts were provided:

- B-1 Lumber
- B-2 Finishing material
- B-3 Upholstering material
- B-4 Hardware
- B-5 Plating material

As purchases were made of these materials, they were charged to each of the appropriate accounts in this classification. Materials used during the month were priced at cost and credited at

the end of the month to each of these accounts, with an offsetting debit to H-12, material cost variances. Thus the material accounts B-1 through B-5 reflected the inventory of each of the five classes of material at cost at the end of each month, while the actual cost of the materials used stood debited to the material cost variances account. As the problem of obtaining the quantities of materials used will differ in the case of each basic class, a brief discussion of procedures will be set forth.

Lumber

It will be remembered that lumber costs were to be calculated by product specifications, and not on the basis of a given amount of lumber that had been delivered for a given order. Therefore standards for lumber had to represent the size as the dimension stock left the rip saw, in other words, the gross quantities that were forwarded to the machine operations. This naturally required that there be proper records and procedures in order to provide control over the lumber between the yard or dry kiln and the point at which it became dimension stock. As each truck was loaded after the cut-off saw, a truck tag, Exhibit F. was prepared.

EXHIBIT F

TRUCK TAG No. 2579

Date Shop No.

Style No.

Quantity Description

Part Name

No. of Pieces Required

Dimensions

Kind of Wood

First Factory Operation

Remarks

This tag was prepared in duplicate; the original (made of paper stock) being forwarded to the cost clerk while the cardboard duplicate remained with the truck until the work had been completed, at which time the follower tag was also sent to the cost clerk. This replaced the old truck tag, Exhibit C. It should be noted that the new truck tags were prepared for shop orders without respect to customers' orders.

A record was kept of all lumber delivered to the cut-off saw, and at the end of the month any lumber which re-

mained uncut at the saw was inventoried in feet—not in dollars. Pieces cut back were also kept track of each month. The total lumber delivered to the saw, less the sum of the lumber remaining uncut at the saw and the cutbacks, represented the feet of lumber delivered to the saw and cut. The total feet of dimension stock cut from this lumber, in other words the total theoretical lumber cut on the basis of standard dimensions, was obtained from the originals of the truck tags in the office. The difference between this figure and the total feet of lumber delivered to the saw represented the waste to be added to all dimension stock as shown on the standard products' specifications. Standard waste rates were used for applying this waste to costs and careful comparison was made with the actual monthly waste results.

Finishing Material

Following is a tabulation of some of the more common finishing materials:

Stain	Varnish
Sanding Material	Rubbing Material
Shellac	

As in the case of the lumber, finishing materials were included in the cost of products on the basis of predetermined standards, as shown by the specification sheets. On the other hand, it was essential to know the actual cost of materials used during the month, both for purposes of inventory determination and for purposes of cost control and proof. In the plant in question, it was found most practical to inventory the finishing materials each month. Quantities consumed were then credited to B-2, finishing material, with an offsetting debit to H-12, material cost variances.

Upholstering Material

Some of the major upholstering materials found in this plant follow:

Covers	Burlap
Springs	Muslin
Tow	Cambric
Cotton	

Here again, as in the case of finishing material, monthly consumption was obtained by taking physical inventories of the upholstering material on hand.

Hardware and Plating Material

Under the new plan, monthly inventories were taken of these materials as the basis for obtaining the credits to the inventory accounts shown in column B of the chart and the offsetting debits to the material cost variances account.

Mill Supplies and Power Plant Supplies

Under the new plan, the mill supplies account, B-7, remained charged with a nominal inventory and all purchases were charged directly to K-13, mill supplies used. In the case of power plant supplies, all purchases, with the single exception of coal, were charged directly to K-5, heat, light and power, while the inventory account, B-8, remained charged with a fixed estimated normal balance. Purchases of coal, on the other hand, were debited to B-8, and the estimated consumption for the month was credited to B-8 with an offsetting debit to K-5. Under this simple plan, it was essential that mill supplies and power plant supplies be inventoried at least yearly and a decision reached regarding the normal balance to carry in subsequent months. Also, weight always had to be given currently to possible permanent increases or decreases in the required normal inventory.

Labor Control

All payrolls were charged as paid to the payroll accrued account, E-1, and at the end of the month a payroll analysis was prepared on which all wages earned during the month, whether paid or accrued, were summarized and classified according to labor accounts in the ledger. The total labor earned during the month was credited to E-1 and the direct labor portion of it was debited to H-13, labor cost variances, while the indirect labor portion was debited to the appropriate labor accounts in the burden section, as listed in column K of the chart. As a result of this procedure, the liability for payrolls earned but not paid was shown in E-1, the actual direct labor for the month was shown as a debit to the labor

cost variances account, while the burden accounts set forth the actual indirect labor.

It will be remembered that under former methods certain classes of labor were tabulated from truck tags while the remaining labor was obtained as accurately as possible from weekly time reports. Study of the labor problem as it related both to cost determination and to labor control, showed this procedure to be entirely inadequate.

The survey showed conclusively that labor, both direct and indirect, should be tabulated according to six natural operating departments. These departments were:

Mill room
Machine and cabinet
Finishing
Upholstering
Plating
Packing

Comments relative to methods adopted for obtaining labor costs by units of products are indicated in the following paragraphs.

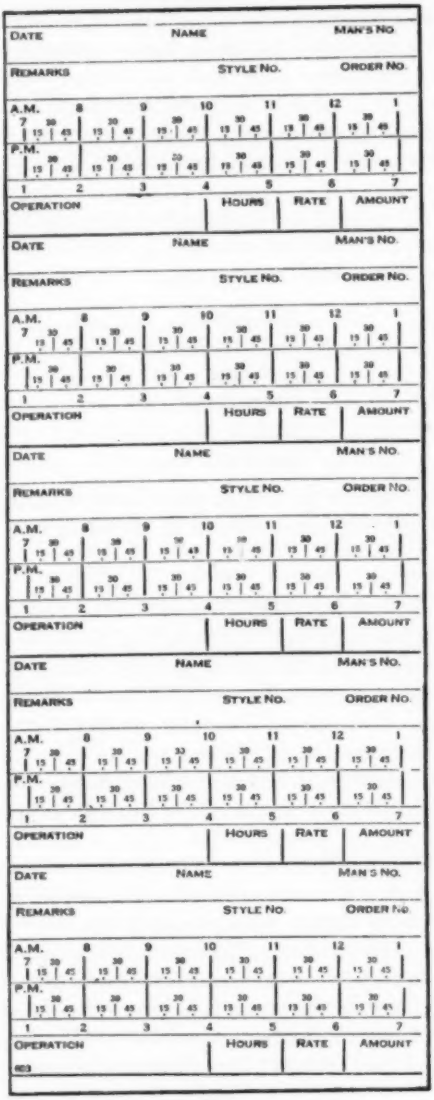
Mill Room

This department included the cut-off saw and the rip saw. Since mill room labor costs were calculated on the basis of a flat cost per board foot, while the payroll analysis showed the total direct labor for the department, it was possible to determine the unit labor cost per foot for the month by dividing the payroll for the month by the total feet of dimension stock cut during the same period. This showed the actual cost in contrast with the standard rate. No labor reports were required from this department.

Machine and Cabinet

Since a wide variety of work was performed in this department, daily labor reports were essential. The time cards used in this plant are illustrated on Exhibit G. Although this card had space for the order number, it was not used in actual practice, but was simply provided to meet possible special eventualities, and the number of pieces was entered instead. Under the caption, Style Number, the part number was inserted in those departments

EXHIBIT G


DATE
NAME
MAN'S NO.
REMARKS
STYLE NO.
ORDER NO.
A.M.
8 9 10 11 12 1
7
P.M.
1 2 3 4 5 6 7
OPERATION
HOURS
RATE
AMOUNT
DATE
NAME
MAN'S NO.
REMARKS
STYLE NO.
ORDER NO.
A.M.
8 9 10 11 12 1
7
P.M.
1 2 3 4 5 6 7
OPERATION
HOURS
RATE
AMOUNT
DATE
NAME
MAN'S NO.
REMARKS
STYLE NO.
ORDER NO.
A.M.
8 9 10 11 12 1
7
P.M.
1 2 3 4 5 6 7
OPERATION
HOURS
RATE
AMOUNT
DATE
NAME
MAN'S NO.
REMARKS
STYLE NO.
ORDER NO.
A.M.
8 9 10 11 12 1
7
P.M.
1 2 3 4 5 6 7
OPERATION
HOURS
RATE
AMOUNT
DATE
NAME
MAN'S NO.
REMARKS
STYLE NO.
ORDER NO.
A.M.
8 9 10 11 12 1
7
P.M.
1 2 3 4 5 6 7
OPERATION
HOURS
RATE
AMOUNT

where the part and not the style was the governing factor. Furthermore, in this plant the hours shown to have been consumed on a given coupon were entered on the coupon; then the cards were cut and the coupons were filed by operations by part numbers. At the end of the month, the hours and pieces shown on the coupons for each part were summarized on an adding machine according to operations, with the result that the labor cost per part for the operations was obtained for constant comparison with the standards used in cost figuring.

Finishing

It was not feasible to obtain labor reports for cost purposes from the finishing department. The standards were set up as the result of time studies and at periodic intervals these studies were checked.

Upholstering

The form of coupon time card used in the machine and cabinet department was also used in the upholstery department, and the method of using these cards and tabulating the results was largely the same in each instance.

Plating Department

As in the case of the finishing department, labor reports were not feasible in the plating department; therefore, time studies were relied upon entirely in those instances where labor costs were obtained. Owing to the small volume of plating work and the difficulty of adequately controlling the costs on this small volume, it was finally decided that all plating, labor and expense costs should be included in factory burden, and they are shown accordingly on the development of factory burden, Exhibit H.

Packing

In this plant some products were packed singly, some two in a crate, while some were sold unpacked. Labor reports were not feasible, therefore, and time studies were relied upon exclusively as the medium for setting and checking cost standards.

It should be noted that standard hourly wage rates were used for cost purposes, and therefore the problem of fluctuating rates as a cost factor was not present.

In most instances, indirect workers were not required to report by job. However, where these reports were necessary, for example for repair jobs, the coupon card illustrated on Exhibit G was also used.

Burden Control

Reference to the chart of accounts, Exhibit E, will show that burden was divided into the two fundamental classes of factory and commercial, the accounts in each division being shown in columns K and L, respectively.

During the month, all actual burden expenses or accruals were charged to the accounts in these two columns. At the end of the month, the sum of this actual burden for the month was cleared by crediting the two burden clearing accounts, K-15 and L-15, and debiting the burden cost variances accounts, H-14 and H-15. As a result, the accounts clearly reflected the actual burden expenses according to classes and according to the two fundamental divisions of factory and commercial, while at the same time this actual burden was transferred to the debit of the cost variances accounts for purposes of burden cost control and proof.

Burden Analysis and Application

Not the least of the problems which confront the cost accountant is that of deciding upon the best and most practical method of applying burden to costs, together with the determination of the centers of burden application and the burden rates to use.

In the plant under consideration, and in most plants of this nature or in this industry, accurate burden application requires that the burden be first divided into the two fundamental elements of factory burden and commercial burden. The classes of expense to be included in each of these broad divisions are shown in columns K and L of the chart of accounts. It was determined also to apply factory burden on the basis of a percentage of direct labor and to apply commercial burden as a percentage of total factory cost. The next problem to arise was whether a single factory burden rate should be used or whether separate rates should be developed for the different operating departments. A study of the product and the flow of production answered this question

quickly, for it revealed that a relatively small number of products passed through all major departments; for example, upholstered chairs proceeded along quite a different manufacturing route than did highly polished tables. Consequently, it was found essential to analyze the factory burden by major departments and then to use these departments as centers of burden application. These burden application centers were as follows:

Mill room
Machine and cabinet
Finishing
Upholstering
Packing

Thus five different rates were needed to apply factory burden to cost and these rates were applied as percentages of direct labor.

The next step was that of setting up the burden budget or, to use a term which I frequently adopt, the development of factory burden. Exhibit H sets forth this budget. On the left portion of the sheet all of the accounts are listed which are shown in column K of the chart of accounts. The amounts budgeted for each of these expenses were entered in the total column and distributed to the centers of burden application on the basis of several different methods of distribution, as indicated on Exhibit H. All figures used on this budget are fictitious with the exception of the burden rates, both actual and recommended, which are correct. However, all figures used are relative and comparable both as to departments and as to classes of expense. It may be noted that the plating department was charged with expense, but that the total was absorbed by the other departments, It was found upon analysis that the department was so small and the output so low that no practical worth would accrue by using a separate plating department rate, and that this department could just as properly be treated as a burden department entirely.

The development of commercial burden is shown on Exhibit J. Here again the figures are fictitious, although comparable, and the rates are actual. For practical purposes, sales deductions and other expense or charges were also applied to costs as percentages of total factory cost.

EXHIBIT H

DEVELOPMENT OF FACTORY BURDEN

Account No.	*Name*	*Basis of Distribution*	*Estimated Total*	*Mill Room*	*Machine & Cabinet*	*Finishing*	*Upholstering*	*Plating*	*Packing*	*General Factory*
K1	Supervision	Direct Labor	$ 6,552.00	$ 163.80	$ 2,176.20	$ 1,950.00	$ 832.00	$	$	$ 1,430.00
K2	Repairs to Buildings	Plan 1	400.00	5.20	110.80	164.80	40.00	6.40	52.80	20.00
K3	Repairs to Machinery and Equipment	Plan 2	4,750.00	109.00	3,331.00	190.00	133.00	71.00		916.00
K4	Yard and Dry Kilns	To General Factory	9,000.00							9,000.00
K5	Heat and Light	Plan 1	2,300.00	30.00	638.00	946.00	230.00	37.00	304.00	115.00
K5	Power	Plan 3	6,800.00	852.00	5,178.00	279.00	7.00	341.00	143.00	
K6	Trucking and Shipping	To General Factory	8,000.00							8,000.00
K7	General Factory Expense	To General Factory	6,000.00							6,000.00
K8	Insurance on Buildings	Plan 1	900.00	11.70	249.00	371.00	90.00	14.40	118.90	45.00
	Insurance on Machinery and Equipment	Plan 2	300.00	6.90	210.30	12.00	8.40	4.50		57.90
	Insurance—Compensation	Total Payroll	1,800.00	70.00	990.00	524.00	148.00		68.00	
K9	Taxes on Buildings	Plan 1	6,000.00	78.00	1,662.00	2,472.00	600.00	96.00	792.00	300.00
	Taxes on Machinery and Equipment	Plan 2	1,200.00	27.60	841.20	48.00	33.60	18.00		231.60
K10	Depreciation on Buildings	Plan 1	2,700.00	35.00	748.00	1,113.00	270.00	43.00	356.00	135.00
	Depreciation on Machinery and Equipment	Plan 2	2,950.00	68.00	2,066.00	119.00	83.00	44.00		570.00
K11	Freight In	To General Factory	6,000.00							6,000.00
K12	Indirect Labor	Actual	10,573.00		5,005.00	1,170.00				4,398.00
K13	Mill Supplied Used	Total Payroll	7,000.00	273.00	3,850.00	2,037.00	574.00		266.00	
	TOTAL		$83,225.00	$1,730.20	$27,055.50	$11,395.80	$3,049.00	$675.30	$2,100.70	$37,218.50
	Distribution of General Factory and Plating Total Payroll			1,477.86	20,841.59	11,027.10	3,107.29		1,439.96	
	TOTAL FACTORY BURDEN		$83,225.00	$3,208.06	$47,897.09	$22,422.90	$6,156.29		$3,540.66	
	Direct Labor		$94,757.00	$4,004.00	$51,181.00	$27,716.00	$7,852.00		$4,004.00	
	BURDEN RATES—ACTUAL		87.8	80.2	93.5	80.9	78.4		88.4	
	BURDEN RATES—RECOMMENDED		100.0	90.0	106.0	90.0	88.0		100.0	

Development of the Standard Product Costs

As stated previously, standard costs were calculated for all products and no attempt was made to collect so-called actual costs, either by orders or on any other basis. These standard costs were set up on cost cards, Exhibit K, using a single card for each product. When once established, the standard costs remained in effect until the controls, through the financial books or the periodic studies of the unit costs for material and labor and the month-to-month burden studies, showed that certain costs should be adjusted. In this way, costs were always available for all products, and the plan of check-up and control kept

EXHIBIT J

DEVELOPMENT OF COMMERCIAL EXPENSE

Account	*Name*	*Actual Last Year*
L1	Executive Salaries	$ 10,500.00
L2	Postage	122.80
L3	Printing and Stationery	97.55
L4	Telephone and Telegraph	261.41
L5	Donations	100.00
L6	General Office Expense	530.35
L7	Office Payroll	3,552.00
L8a	Bank Exchange	170.66
L8b	Directors' Fees	295.00
	TOTAL ADMINISTRATIVE EXPENSE	15,629.77
L9	Commissions	18,080.29
L10	Traveling Expense	1,300.43
L11	Sales Room Expense	2,713.43
L12	Catalogs	611.80
L13a	Bad Debts	
L13b	Advertising	100.00
L14	Photo Supplies	251.78
	TOTAL SELLING EXPENSE	23,057.73
	TOTAL COMMERCIAL EXPENSE	$ 38,687.50
	Factory Cost of Sales	$230,325.91
	EXPENSE RATE—ACTUAL	16.8%
	EXPENSE RATE—RECOMMENDED	17.0%

SALES DEDUCTIONS AND OTHER EXPENSE

		Total
J5	Freight Out	$ 2,961.26
J6	Discounts Allowed	5,894.05
M11	Interest Paid	
M12	Life Insurance Expense	609.03
	TOTAL	$ 9,464.34
	Factory Cost of Sales	$230,325.91
	EXPENSE RATE—ACTUAL	4.1%
	EXPENSE RATE—RECOMMENDED	5.0%

EXHIBIT K

COST CARD

Style No._____

Description Cost Per

Order No.								
Date								
Material	**Quan.**		**Price**	**Amount**		**Quan.**	**Price**	**Amount**
Lumber								
Finishing Material								
Upholstering Material								
Hardware								
Total Material								
Labor and Burden	**Labor**		%	**Burden**		**Labor**	%	**Burden**
Mill Room								
Machine and Cabinet								
Finishing								
Upholstering								
Plating								
Packing								
Total Labor and Burden								
Summary Material								
Labor								
Burden								
Total Factory Costs								
Commercial Expense								
Rate								
Amount								
Total Cost								
Add in Deductions								
Total Cost and Sales Deductions								
Selling Price								
Profit								

them up-to-date and proved constantly without the detail of collecting any actual product costs on orders passing through the plant.

The cost card shown on Exhibit K was printed and ruled alike on both sides, thus making possible the recalculation of the costs at three different periods subsequent to the initial determination of the data. Comparison of this cost card with the cost sheet used formerly, as illustrated on Exhibit B, together with a consideration of the relative detail involved in operating each plan, will be sufficient to show the great improvement inherent in the revised procedure. But of even greater importance is the fact that the revised costs are predetermined, uniform during the life of the standards, and under constant control and proof, while the former costs were statistical, constantly fluctuating as regards a given product, and incapable of being accurately controlled or proved against actual expenditure.

Control of Costs Through Cost Variances Accounts

The chart of accounts shows that the following four cost variances accounts were provided for:

H-12 Material cost variances
H-13 Labor cost variances
H-14 Factory burden cost variances
H-15 Commercial burden cost variances

It was the province of these variances accounts to filter out and control any differences that arose between the actual material, labor or burden cost of any specific article, and the standard cost that had been set up for that article and was being used as a basis for determining selling prices and calculating product profitability. In other words, actual expenditures in material, labor and burden were fed into these variances accounts and products priced at standard cost were taken out of the variances accounts. If any differences existed between the two—the value fed in and the value taken out—the variances accounts disclosed them and provided the basis for studying the causes of the differences.

As explained previously, the material cost variances account was debited at the end of the month with the actual cost of material used, thus leaving the inventory accounts, B-1 through B-5,

to reflect the inventory at cost at the end of each month. Next, the material used on the basis of standard cost was determined and credited to H-12, material cost variances, with an offsetting debit to B-10, work in process material. Likewise, the labor cost variances account was charged with actual direct labor payroll. The amount of direct labor absorbed on the basis of standard costs was determined and an entry made crediting this standard amount for the month to H-13, labor cost variances, with an offsetting debit to B-11, work in process labor. Burden cost variances accounts were charged with actual burden for the month through the medium of the two burden clearing accounts, K-15 and L-15. The total factory burden absorbed at standard rates for the month was then credited to H-14, factory burden cost variances account, with an offsetting debit to B-12, wrok in process burden. The total commercial burden absorbed at standard rates during the month was credited to H-15, commercial burden cost variances, and offset by a debit to J-12, commercial cost of sales.

When the procedure described had been completed at the end of the month, the raw material accounts, B-1 through B-5 showed the inventory at actual cost; the supplies accounts, B-7 and B-8, reflected the fixed or normal inventories, with the exception of coal which varied in accordance with usage; and the work in process accounts, B-10 through B-12, were charged with the actual work placed in process but priced at standard cost. Furthermore, account J-12 showed the commercial cost of sales for the month on the basis of standard costs, while the four cost variances accounts, H-12 through H-15, showed the differences which arose during the month between the predetermined or standard costs and the actual expense of performing the work.

Work in Process and Cost of Sales

Reference to the chart of accounts will show that a finished goods account was not provided for. This omission was intentional. In this plant, goods were shipped promptly, therefore no transfers were made from work in process accounts until shipments had been made. All sales shipped during the month were priced at standard factory cost for material, labor and factory burden, as shown by the appropriate standard cost cards. The

sum of these cost of sales figures was credited to the work in process accounts with a balancing debit to J-11, factory cost of sales account. When this had been done, the work in process accounts reflected the inventory of goods put in process, but not shipped, priced at standard cost. The question may be raised as to why the raw material accounts were carried at actual cost while the work in process was carried at standard cost. Reflection will show the logic of this procedure. The raw materials had not lost their original identity and were carried at cost (or market, if the latter was lower) until they were placed in process. When that step took place, the materials ceased to be materials as such and became manufactured products in varying stages of completion. Since the standard costs were considered the real costs of the products, all work in process was, therefore, priced on this basis.

Emphasis should be given to the fact that under the standard cost principle that was followed in this study, the standard costs represented the real costs and the differences between these standards and the actual costs represented simply gains or losses as the result of operating and other efficiencies or volume conditions.

The factory cost of sales account, J-11, together with the commercial cost of sales account, J-12, reflected the total standard cost of shipments for the month as compared with the sales and deductions accounts, J-1 through J-6.

Monthly Statements

The new plan lent itself admirably to the efficient preparation of valuable monthly statements. While the specific statements required usually depend upon the management, there are two which I always regard as fundamental in every instance. These are:

Monthly comparative profit and loss statement
Monthly comparative burden statement

Suggested illustrations of each of these statements are shown in Exhibits L and M, respectively.

The profit and loss statement was prepared from the balances for the month as shown in the accounts in columns J and M of the chart, and the balances reflected in the four cost variances

accounts shown in column H. Study of this statement will show that it differs greatly from any orthodox profit and loss statement. It really provides a means of measuring operating efficiency and results, for it shows the profit that would have been made if all predetermined expectations had been met. It shows the profit that was actually made, and then in analytical form sets forth the reasons for the differences between the two results

EXHIBIT L

THE VERMONT MAPLE FURNITURE CO.
MONTHLY PROFIT AND LOSS STATEMENT

Account Symbol	*Name*	*April*	*1938 4 Months to Date*
J1	Sales	$.....	$.....
	Less Deductions:		
J3	Sales Returns	.....	.....
J4	Sales Allowances	.....	.....
J5	Freight Out	.....	.....
J6	Discounts Allowed	.....	.....
	TOTAL DEDUCTIONS	.....	.....
	Net Sales	.....	.....
	Cost of Sales:		
J11	Factory Cost of Sales	.....	.....
J12	Commercial Cost of Sales	.....	.....
	TOTAL STANDARD COST OF SALES	.....	.....
	Anticipated Operating Profit	.....	.....
	Cost Variances:		
H12	Material	.....	.....
H13	Labor	.....	.....
H14	Factory Burden	.....	.....
H15	Commercial Burden	.....	.....
	TOTAL COST VARIANCES	.....	.....
	Actual Operating Profit	.....	.....
	Other Income:		
M1	Interest Received	.....	.....
M2	Discounts Received	.....	.....
M3	Sundry Sales and Income	.....	.....
	TOTAL OTHER INCOME	.....	.....
	Operating Profit and Other Income	.....	.....
	Other Charges:		
M11	Interest Paid	.....	.....
M12	Life Insurance Expense	.....	.....
M14	Federal Income Taxes	.....	.....
	TOTAL OTHER CHARGES	.....	.....
	NET PROFIT	$.....	$.....
	Interest paid, life insurance expense, freight out and discounts allowed to factory cost of sales	%.....	%.....

EXHIBIT M

THE VERMONT MAPLE FURNITURE CO.
MONTHLY BURDEN STATEMENT

Account Symbol	*Name*	*April*	*1938 4 Months to Date*
	FACTORY		
K1	Supervision		
K2	Repairs to Buildings		
K3	Repairs to Machinery and Equipment		
K4	Yard and Kilns		
K5	Heat, Light and Power		
K6	Trucking and Shipping		
K7	General Factory Expense		
K8	Insurance		
K9	Taxes		
K10	Depreciation		
K11	Freight In		
K12	Indirect Labor		
K13	Mill Supplies Used		
	TOTAL FACTORY BURDEN		
H13	Direct Labor		
	BURDEN RATE*	%	%
	COMMERCIAL		
L1	Executive Salaries		
L2	Postage		
L3	Printing and Stationery		
L4	Telephone and Telegraph		
L5	Donations		
L6	General Office Expense		
L7	Office Payroll		
L8a	Bank Exchange		
L8b	Directors' Fees		
L9	Commissions		
L10	Trucking		
L11	Rent and Expense of Sales Rooms		
L12	Catalogs		
L13a	Bad Debts		
L13b	Advertising		
L14	Photo Supplies		
	TOTAL COMMERCIAL BURDEN		
J11	Factory Cost of Sales		
	BURDEN RATE	%	%

*Note: The factory burden should also be analyzed periodically—certainly every quarter—by burden application centers to obtain a statistical check on the standard burden rates.

—just how expectations cleared with grim realities—and the means of locating ways of improving the situation.

The burden statement provided a continuous analysis in comparative form of all expenses of the business, with the exception of direct material and direct labor, and showed the effects of varying expenses on costs and the amounts by which the standard burden rates failed to absorb actual expense in costs, or, on the other hand, to absorb excess amounts in the product costs. It

served as a continuous expense barometer and compass on burden absorption in product costs.

With the new plan in effective operation, these two monthly statements made it possible for the executive to lead the business instead of following it.

Conclusion

As stated previously, the plan reported upon was developed for and installed in a medium-sized furniture factory. It was found both simple in operation and effective in results. But of greater importance from the standpoint of some other manufacturer who may chance to read this Bulletin, the plan was sufficiently flexible to lend itself readily to installation in any woodworking factory. Regardless of the size of the business, the fundamentals of accounting control remain constant. They are universal because the basic problems are universal. The peanut vendor on the corner and the Ford Motor Company have the same things to do—buying, fabricating and selling. Therefore, any plan of accounting and cost control must recognize these simple fundamentals and be so constructed that neither expansion nor contraction will throw the machinery out of order. Rigidity and inflexibility must be absent. The plan reported upon herewith possesses these advantages.